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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/928,194	08/11/2001	Kurt E. Petersen	356952000304	8004

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EXAMINER
KANG, DONGHEE

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 06/10/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/928,194	PETERSEN ET AL.	
	Examiner	Art Unit	
	Donghee Kang	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *55-89* is/are pending in the application.

4a) Of the above claim(s) *55-69 and 78-89* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *70-77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. During a telephone conversation with Mr.Eide on March 26, 2003 a provisional election was made without traverse to prosecute the invention of Fig.9. Affirmation of this election must be made by applicant in replying to this Office action. Claims **55-69 & 78-89** have withdrawn from further consideration by the examiner because these claims does not meet the Fig.9 which does not have a single crystal silicon structure formed in said first wafer layer.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The specification does not provide the beam having an aspect ratio of height to width of at least 5:1 or 10:1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims **70-77** are rejected under 35 U.S.C. 103(a) as being unpatentable over MacDonald et al. (US 5,198,390).

Regarding claims **70 & 74**, MacDonald et al. teach a semiconductor micromechanical device, comprising (Fig.1):

a first single crystal silicon wafer layer including a recessed region (18 & 20); a carrier; and etching substantially vertically through the first wafer layer near the recessed region so as to form a beam (22) integral with the first wafer layer and suspended over the carrier.

MacDonald et al. do not expressly teach beam having an aspect ratio of height to width of at least 5:1. However, MacDonald et al. teach the process providing excellent control of lateral dimensions (0.2μm to about 2μm) while permitting a large vertical depth (1μm to about 4μm). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the beam having an aspect ratio of height to width of at least 5:1 since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

MacDonald et al. do not expressly teach the securing (fusion bonding) the first wafer layer to the carrier. However, it is how to fabricate the semiconductor micromechanical device rather than structure of device. This is a product-by-process limitation. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production.

If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was

made by a different process". In re Thorpe, 777F. 2d 695,698 USPQ 964, 966 (Fed. Cir.1985). See also MPEP 2113. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claim in "product by process" claim or not.

Regarding claims **71 & 75**, MacDonald et al. teach the step of etching including reactive ion etching.

Regarding claims **72 & 76**, MacDonald et al. teach the first wafer layer made of a single crystal (100) oriented silicon wafer layer (Col.3, lines 30-52).

Regarding claims **73 & 77**, MacDonald et al. teach etching substantially vertically through the first wafer layer near the recessed region so as to form beam integral with the first wafer layer and suspended over the recessed region but do not teach forming multiple beams. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form multiple beams, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v.Bemis Co.*, 193 USPQ 8.

MacDonald et al. do not expressly teach beam having an aspect ratio of height to width of at least 10:1. However, MacDonald et al. teach the process providing excellent control of lateral dimensions (0.2μm to about 2μm) while permitting a large vertical depth (1μm to about 4μm). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the beam having an aspect ratio of height to width of at least 5:1 since it has been held that where the general

conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Donghee Kang

Donghee Kang
Examiner
Art Unit 2811

dhk
June 3, 2003